

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1 Claim 1 (currently amended): A computer-implemented method  
2 for determining user profile information for a user the  
3 computer-implemented method comprising:  
4 a) determining, with a computer system including at  
5 least one computer on a network, initial user profile  
6 information for the user using information included in  
7 past search queries submitted to a search engine by  
8 the user, wherein such information is independent of  
9 documents returned as search results to the past  
10 search queries;  
11 b) inferring, with the computer system, user profile  
12 information for the user;  
13 c) determining, with the computer system, the user  
14 profile information for the user using both the  
15 initial user profile information and the inferred user  
16 profile information; and  
17 d) controlling, with the computer system, the serving  
18 of an advertisement to the user using the determined  
19 user profile information.

Claim 2 (canceled)

- 1 Claim 3 (currently amended): The computer-implemented  
2 method of claim 1 wherein the act of determining, with the  
3 computer system, [[a]] initial user profile information  
4 for the user further uses past document selections by the  
5 user.

Claim 4 (canceled)

1 Claim 5 (previously presented): The computer-implemented  
2 method of claim 1 wherein the initial user profile includes  
3 a plurality of attributes, each of the plurality of  
4 attributes having a value and a score.

1 Claim 6 (previously presented): The computer-implemented  
2 method of claim 5 wherein the score indicates a likelihood  
3 that the value of the attribute is correct.

1 Claim 7 (currently amended): A computer-implemented method  
2 for determining user profile information for a user, the  
3 computer-implemented method comprising:

- 4 a) determining, with a computer system including at  
5 least one computer on a network, initial user profile  
6 information for the user;
- 7 b) inferring, with the computer system, user profile  
8 information for the user;
- 9 c) determining, with the computer system, the user  
10 profile information for the user using both the  
11 initial user profile information and the inferred user  
12 profile information; and
- 13 d) controlling, with the computer system, the serving  
14 of an advertisement to the user using the determined  
15 user profile information,  
16 wherein the act of inferring user profile  
17 information for the user includes
  - 18 i) defining a node for each of a number of  
19 documents and the user, wherein each node  
20 represents a particular one of the number of  
21 documents or the user,
  - 22 ii) adding edges between nodes if there is an  
23 association between the nodes to define a graph,

24            wherein there is an association between at least  
25            two of the nodes, and  
26            iii) inferring user profile information for the  
27            user using a topology of the graph and user  
28            profile information of other documents.

1    Claim 8 (previously presented): The computer-implemented  
2    method of claim 7 wherein an edge is added between first  
3    and second nodes if a document corresponding to the first  
4    node was returned in a search results page to a search  
5    query from the user corresponding to the second node, and  
6    wherein at least one document corresponding to the first  
7    node was returned in a search results page to a search  
8    query from the user corresponding to the second node.

1    Claim 9 (previously presented): The computer-implemented  
2    method of claim 7 wherein an edge is added between first  
3    and second nodes if a document corresponding to the first  
4    node was selected by the user corresponding to the second  
5    node, and wherein at least one document corresponding to  
6    the first node was selected by the user corresponding to  
7    the second node.

1    Claim 10 (previously presented): The computer-implemented  
2    method of claim 7 wherein an edge is added between first  
3    and second nodes if a document corresponding to the first  
4    node is linked with a document corresponding to the second  
5    node, and wherein at least one document corresponding to  
6    the first node is linked with at least one document  
7    corresponding to the second node.

1 Claim 11 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was visited by a set of users that have visited  
5 another document corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was visited by a set of users that have visited at  
8 least one other document corresponding to the second node.

1 Claim 12 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a user corresponding to the first node  
4 visited a set of one or more documents also visited by  
5 another user corresponding to the second node, and wherein  
6 the user corresponding to the first node visited a set of  
7 one or more documents also visited by the other user  
8 corresponding to the second node.

1 Claim 13 (currently amended): The computer-implemented  
2 method of claim 7 wherein the act of inferring, with the  
3 computer system, user profile information for the user  
4 using a topology of the graph includes  
5 i) multiplying the initial user profile  
6 information of the user by a first value to  
7 generate a first product;  
8 ii) multiplying user profile information of  
9 neighboring graph nodes by a second value to  
10 generate a second product; and  
11 iii) adding the first product and the second  
12 product.

1 Claim 14 (currently amended): A computer-implemented  
2 method for determining user profile information for a  
3 document, the computer-implemented method comprising:  
4 a) determining, with a computer system including at  
5 least one computer on a network, initial user profile  
6 information for the document;  
7 b) inferring, with the computer system, user profile  
8 information for the document;  
9 c) determining, with the computer system, the user  
10 profile information for the document using both the  
11 initial user profile information and the inferred user  
12 profile information;  
13 d) associating, with the computer system, with the  
14 document, the determined user profile information for  
15 the document;  
16 e) storing, with the computer system, the association  
17 of the document with the determined user profile  
18 information for the document; and  
19 f) controlling, with the computer system, the serving  
20 of an advertisement with the document using the  
21 determined user profile information for the document  
22 stored in association with the document.

1 Claim 15 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of determining a  
3 initial user profile information for the document uses  
4 content information from the document.

1 Claim 16 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of determining initial  
3 user profile information for the document uses document  
4 meta information.

1 Claim 17 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of determining initial  
3 user profile information for the document uses (i) content  
4 information from the document, and (ii) document meta  
5 information.

1 Claim 18 (previously presented): The computer-implemented  
2 method of claim 14 wherein the initial user profile  
3 information includes a plurality of attributes, each of the  
4 plurality of attributes having a value and a score.

1 Claim 19 (previously presented): The computer-implemented  
2 method of claim 18 wherein the score indicates a likelihood  
3 that the value of the attribute is correct.

1 Claim 20 (currently amended): The computer-implemented  
2 method of claim 14 wherein the act of inferring, with the  
3 computer system, user profile information for the document  
4 includes  
5 i) defining a node for each of a number of  
6 documents and for each of a number of users,  
7 wherein each node represents a particular one of  
8 the number of documents or a particular one of  
9 the number of users,  
10 ii) adding edges between nodes if there is an  
11 association between the nodes to define a graph,  
12 wherein there is an association between at least  
13 two of the nodes, and  
14 iii) inferring user profile information for the  
15 document using a topology of the graph and user  
16 profile information of users and of other  
17 documents.

1 Claim 21 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was returned in a search results page to a search  
5 query from the user corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was returned in a search results page to a search  
8 query from the user corresponding to the second node.

1 Claim 22 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was selected by the user corresponding to the second  
5 node, and wherein at least one document corresponding to  
6 the first node was selected by the user corresponding to  
7 the second node.

1 Claim 23 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node is linked with a document corresponding to the second  
5 node, and wherein at least one document corresponding to  
6 the first node is linked with at least one document  
7 corresponding to the second node.

1 Claim 24 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was visited by a set of users that have visited  
5 another document corresponding to the second node, and  
6 wherein at least one document corresponding to the first

7 node was visited by a set of users that have visited at  
8 least one other document corresponding to the second node.

1 Claim 25 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a user corresponding to the first node  
4 visited a set of one or more documents also visited by  
5 another user corresponding to the second node, and wherein  
6 the user corresponding to the first node visited a set of  
7 one or more documents also visited by the other user  
8 corresponding to the second node.

1 Claim 26 (previously presented): The computer-implemented  
2 method of claim 20 wherein the act of inferring user  
3 profile information for the document using a topology of  
4 the graph includes  
5           i) multiplying the initial user profile  
6           information of the document by a first value to  
7           generate a first product;  
8           ii) multiplying user profile information of  
9           neighboring graph nodes by a second value to  
10          generate a second product; and  
11          iii) adding the first product and the second  
12          product.

Claims 27-32 (canceled)

1 Claim 33 (currently amended): Apparatus for determining  
2 user profile information for a user, the apparatus  
3 comprising:  
4       a) at least one processor;  
5       b) an input device; and



6        c) at least one storage device storing a computer  
7        executable code which, when executed by the at least  
8        one processor, performs a method of  
9            1) [[~~means for~~]] determining initial user  
10          profile information for the user using  
11          information included in past search queries  
12          submitted by the user, wherein such information  
13          is independent of documents returned as search  
14          results to the past search queries, [[+]]  
15          2) [[~~b~~]-~~means for~~]] inferring user profile  
16          information for the user, [[+]]  
17          3) [[~~e~~]-~~means for~~]] determining the user  
18          profile information for the user using both the  
19          initial user profile information and the inferred  
20          user profile information, [[+]] and  
21          4) [[~~d~~]-~~means for~~]] controlling the serving of  
22          an advertisement to the user using the determined  
23          user profile information.

Claim 34 (canceled)

1    Claim 35 (currently amended): The apparatus of claim 33  
2    wherein the act of [[~~means for~~]] determining an initial  
3    user profile information for the user further [[~~use~~]] uses  
4    past document selections by the user.

Claim 36 (canceled)

1    Claim 37 (original): The apparatus of claim 33 wherein the  
2    initial user profile includes a plurality of attributes,  
3    each of the plurality of attributes having a value and a  
4    score.

1 Claim 38 (original): The apparatus of claim 37 wherein the  
2 score indicates a likelihood that the value of the  
3 attribute is correct.

1 Claim 39 (currently amended): Apparatus for determining  
2 user profile information for a user, the apparatus  
3 comprising:

- 4 a) at least one processor;
- 5 b) an input device; and
- 6 c) at least one storage device storing a computer  
7 executable code which, when executed by the at least  
8 one processor, performs a method of
  - 9 1) ~~[[means for]]~~ determining initial user  
10 profile information for the user, ~~[[+]]~~
  - 11 2) ~~[[b) means for]]~~ inferring user profile  
12 information for the user, ~~[[+]]~~
  - 13 3) ~~[[e) means for]]~~ determining the user  
14 profile information for the user using both the  
15 initial user profile information and the inferred  
16 user profile information, ~~[[+]]~~ and
  - 17 4) ~~[[d) means for]]~~ controlling the serving of  
18 an advertisement to the user using the determined  
19 user profile information,  
20 wherein the act of ~~[[means for]]~~ inferring user  
21 profile information for the user includes ~~[[include~~  
22 ~~means for]]~~
    - 23 i) defining a node for each of a number of  
24 documents and the user, wherein each node  
25 represents a particular one of the number of  
26 documents or the user,
    - 27 ii) adding edges between nodes if there is  
28 an association between the nodes to define a

29 graph, wherein there is an association  
30 between at least two of the nodes, and  
31 iii) inferring user profile information for  
32 the user using a topology of the graph and  
33 user profile information of other documents.

1 Claim 40 (currently amended): The apparatus of claim 39  
2 wherein the act of ~~[[means-for]]~~ adding edges adds an edge  
3 between first and second nodes if a document corresponding  
4 to the first node was returned in a search results page to  
5 a search query from the user corresponding to the second  
6 node, and wherein at least one document corresponding to  
7 the first node was returned in a search results page to a  
8 search query from the user corresponding to the second  
9 node.

1 Claim 41 (currently amended): The apparatus of claim 39  
2 wherein the act of ~~[[means-for]]~~ adding edges adds an edge  
3 between first and second nodes if a document corresponding  
4 to the first node was selected by the user corresponding to  
5 the second node, and wherein at least one document  
6 corresponding to the first node was selected by the user  
7 corresponding to the second node.

1 Claim 42 (currently amended): The apparatus of claim 39  
2 wherein the act of ~~[[means-for]]~~ adding edges adds an edge  
3 between first and second nodes if a document corresponding  
4 to the first node is linked with a document corresponding  
5 to the second node, and wherein at least one document  
6 corresponding to the first node is linked with at least one  
7 document corresponding to the second node.

1 Claim 43 (currently amended): The apparatus of claim 39  
2 wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3 between first and second nodes if a document corresponding  
4 to the first node was visited by a set of users that have  
5 visited another document corresponding to the second node,  
6 and wherein at least one document corresponding to the  
7 first node was visited by a set of users that have visited  
8 at least one other document corresponding to the second  
9 node.

1 Claim 44 (currently amended): The apparatus of claim 39  
2 wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3 between first and second nodes if a user corresponding to  
4 the first node visited a set of one or more documents also  
5 visited by another user corresponding to the second node,  
6 and wherein the user corresponding to the first node  
7 visited a set of one or more documents also visited by the  
8 other user corresponding to the second node.

1 Claim 45 (currently amended): The apparatus of claim 39  
2 wherein the act of ~~[[means for]]~~ inferring user profile  
3 information for the user using a topology of the graph  
4 includes ~~[[include means for]]~~  
5 i) multiplying the initial user profile  
6 information of the user by a first value to  
7 generate a first product, ~~[[+]]~~  
8 ii) multiplying user profile information of  
9 neighboring graph nodes by a second value to  
10 generate a second product, ~~[[+]]~~ and  
11 iii) adding the first product and the second  
12 product.

1 Claim 46 (currently amended): Apparatus for determining  
2 user profile information for a document, the apparatus  
3 comprising:  
4 a) at least one processor;  
5 b) an input device; and  
6 c) at least one storage device storing a computer  
7 executable code which, when executed by the at least  
8 one processor, performs a method of  
9 1) ~~[[means for]]~~ determining initial user  
10 profile information for the document, ~~[[+]]~~  
11 2) ~~[[b) means for]]~~ inferring user profile  
12 information for the document, ~~[[+]]~~  
13 3) ~~[[e) means for]]~~ determining the user  
14 profile information for the document using both  
15 the initial user profile information and the  
16 inferred user profile information, ~~[[+]]~~  
17 4) ~~[[d) means for]]~~ associating with the  
18 document, the determined user profile information  
19 for the document, ~~[[+]]~~  
20 5) ~~[[e) means for]]~~ storing the association of  
21 the document with the determined user profile  
22 information for the document, ~~[[+]]~~ and  
23 6) ~~[[f) means for]]~~ controlling the serving of  
24 an advertisement with the document using the  
25 determined user profile information for the  
26 document stored in association with the document.

1 Claim 47 (currently amended): The apparatus of claim 46  
2 wherein the act of ~~[[means for]]~~ determining an initial  
3 user profile information for the document ~~[[use]]~~ uses  
4 content information from the document.

1 Claim 48 (currently amended): The apparatus of claim 46  
2 wherein the act of ~~[[means for]]~~ determining initial user  
3 profile information for the document ~~[[use]]~~ uses document  
4 meta information.

1 Claim 49 (currently amended): The apparatus of claim 46  
2 wherein the act of ~~[[means for]]~~ determining initial user  
3 profile information for the document ~~[[use]]~~ uses i)  
4 content information from the document, and (ii) document  
5 meta information.

1 Claim 50 (original): The apparatus of claim 46 wherein the  
2 initial user profile information includes a plurality of  
3 attributes, each of the plurality of attributes having a  
4 value and a score.

1 Claim 51 (original): The apparatus of claim 50 wherein the  
2 score indicates a likelihood that the value of the  
3 attribute is correct.

1 Claim 52 (currently amended): The apparatus of claim 46  
2 wherein the act of ~~[[means for]]~~ inferring user profile  
3 information for the document includes ~~[[include means for]]~~  
4 i) defining a node for each of a number of  
5 documents and for each of a number of users,  
6 ii) adding edges between nodes if there is an  
7 association between the nodes to define a graph,  
8 wherein there is an association between at least  
9 two of the nodes, and  
10 iii) inferring user profile information for the  
11 document using a topology of the graph and user

12                   profile information of users and of other  
13                   documents.

1   Claim 53 (currently amended): The apparatus of claim 52  
2   wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3   between first and second nodes if a document corresponding  
4   to the first node was returned in a search results page to  
5   a search query from the user corresponding to the second  
6   node, and wherein at least one document corresponding to  
7   the first node was returned in a search results page to a  
8   search query from the user corresponding to the second  
9   node.

1   Claim 54 (currently amended): The apparatus of claim 52  
2   wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3   between first and second nodes if a document corresponding  
4   to the first node was selected by the user corresponding to  
5   the second node, and wherein at least one document  
6   corresponding to the first node was selected by the user  
7   corresponding to the second node.

1   Claim 55 (currently amended): The apparatus of claim 52  
2   wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3   between first and second nodes if a document corresponding  
4   to the first node is linked with a document corresponding  
5   to the second node, and wherein at least one document  
6   corresponding to the first node is linked with at least one  
7   document corresponding to the second node.

1   Claim 56 (currently amended): The apparatus of claim 52  
2   wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3   between first and second nodes if a document corresponding

4 to the first node was visited by a set of users that have  
5 visited another document corresponding to the second node,  
6 and wherein at least one document corresponding to the  
7 first node was visited by a set of users that have visited  
8 at least one other document corresponding to the second  
9 node.

1 Claim 57 (currently amended): The apparatus of claim 52  
2 wherein the act of ~~[[means for]]~~ adding edges adds an edge  
3 between first and second nodes if a user corresponding to  
4 the first node visited a set of one or more documents also  
5 visited by another user corresponding to the second node,  
6 and wherein the user corresponding to the first node  
7 visited a set of one or more documents also visited by the  
8 other user corresponding to the second node.

1 Claim 58 (currently amended): The apparatus of claim 52  
2 wherein the act of ~~[[means for]]~~ inferring user profile  
3 information for the document using a topology of the graph  
4 includes ~~[[include means for]]~~  
5 i) multiplying the initial user profile  
6 information of the document by a first value to  
7 generate a first product, ~~[[+]]~~  
8 ii) multiplying user profile information of  
9 neighboring graph nodes by a second value to  
10 generate a second product, ~~[[+]]~~ and  
11 iii) adding the first product and the second  
12 product.

Claims 59-64 (canceled)



1 Claim 65 (previously presented): The computer-implemented  
2 method of claim 14 wherein the determined user profile  
3 information is associated with the document, not with a  
4 user.

1 Claim 66 (previously presented): The apparatus of claim 46  
2 wherein the determined user profile information is  
3 associated with the document, not with a user.

Claims 67-76 (canceled)